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18.(Cancelled)

19.(Cancelled)

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25.(Cancelled)

26.(Cancelled)

27.(New) Method for determining the number of receptors on a carrier, comprising:

(a) preparing a carrier;

(b) immobilizing at least one receptor on the carrier, with the receptor having the ability to interact with a ligand and to form a receptor-ligand complex;

(c) after immobilization of at the at least one receptor on the carrier, bringing a marker in contact with the receptor, in order to form a receptor-marker complex with separable binding between receptor and marker; and

(d) determining the number of receptors on the carrier by detecting the receptor-marker complexes;

wherein the receptor-marker complexes are detected independently of receptor-ligand complexes.

28.(New) The method of claim 27, comprising:

(i) bringing the receptor in contact with a test sample that is to be examined for its content of ligands.

29.(New) The method of claim 28, comprising:

(ii) following step (i), detecting the receptor-ligand complexes.

30.(New) The method of claim 27, wherein the carrier is a semiconductor with a surface of silicon, semimetal oxides, especially SiO_x, or aluminum oxide.

31.(New) The method of claim 27, wherein the receptor is selected from the group consisting of antibodies, especially monoclonal or polyclonal antibodies, and functional fragments thereof; proteins, oligo- and polypeptides, nucleic acids, especially DNA, RNA, cDNA, PNA, oligo- and polynucleotides; as well as saccharides, especially mono-, di-, tri-, oligo-, and polysaccharides.

32.(New) The method of claim 27, wherein the binding between receptor and ligand in the receptor-ligand complex is separable.

33.(New) The method of claim 27, wherein the binding between receptor and ligand has a half-life in the range of at least microseconds.

34.(New) The method of claim 27, wherein n markers or a multiple of n markers are associated with n receptors.

35.(New) The method of claim 27, wherein the marker has reactive groups, especially thiol groups.

36.(New) The method of claim 27, wherein the marker comprises a luminescent dye, a chemoluminescent, a photoluminescent dye, or a bioluminescent dye.

37.(New) The method of claim 27, wherein the marker comprises a fluorescent dye, preferably a fluorochrome, and with greater preference a rhodamine, especially tetramethylrhodamine isothiocyanate.

38.(New) The method of claim 27, wherein the receptor comprises inherent fluorescence.

39.(New) The method of claim 38, wherein the amino acid tryptophan provides the inherent fluorescence.

40.(New) The method of claim 38, wherein the binding between receptor and marker has a fluorescence half-life in the range of nanoseconds.

41.(New) The method of claim 27, wherein the receptor-marker complex includes fluorescence resonance energy transfer.

42.(New) The method of claim 41, wherein the fluorescence of the fluorescence resonance energy transfer is modified by the interaction of the ligand with the receptor.

43.(New) The method of claim 41, wherein the receptor has the donor and the acceptor of the fluorescence resonance energy transfer.

44.(New) The method of claim 41, wherein the fluorescence is produced by the donor or the fluorescence is quenched by the acceptor.

45.(New) The method of claim 41, wherein the ligand acts as the donor of the fluorescence resonance energy transfer.

46.(New) The method of claim 41, wherein the ligand brings the donor and the acceptor of the fluorescence resonance energy transfer directly into contact.

47.(New) The method of claim 41, wherein fluorescence-labeled ligands are used.

48.(New) The method of claim 42, wherein the marker is a microparticle.

49.(New) A method of determining the number of receptors using a biosensor, comprising:

(a) preparing a semiconductor carrier;

(b) immobilizing at least one receptor on the carrier, with the receptor having the ability to interact with a ligand and to form a receptor-ligand complex;

(c) after immobilization of at the at least one receptor on the carrier, bringing a marker in contact with the receptor, in order to form a receptor-marker complex with separable binding between receptor and marker; and

(d) determining the number of receptors on the carrier by detecting the receptor-marker complexes;

wherein the receptor-marker complexes are detected independently of receptor-ligand complexes, the marker comprises a luminescent dye, a chemoluminescent, a photoluminescent dye, or a bioluminescent dye.